

# **Appendix A**

## **Traffic and Safety Analysis, 2009**



May 21, 2008



Mr. Per'Christian L. Rasmussen  
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Subject: Statter Harbor Planning and Permitting Services  
Traffic and Safety Analysis

Dear Mr. Rasmussen:

### Introduction

USKH Inc. (USKH) completed an analysis of traffic and safety issues related to the proposed improvements at Statter Harbor. We met with the Alaska Department of Transportation and Public Facilities (DOT&PF) Traffic Section August 4, 2008, to present the general scope of the project and gain an understanding of DOT&PF concerns related to the proposed project. At the meeting, DOT&PF suggested traffic data collection to support the analysis of traffic conditions in the vicinity of the proposed Statter Harbor access to Glacier Highway.

The area of primary concern to DOT&PF is the intersection of Glacier Highway and Mendenhall (Back) Loop Road. DOT&PF is developing a project that would construct a roundabout at this intersection. USKH analyzed traffic operations at this intersection in its current configuration and as a roundabout. USKH completed the DOT&PF-requested traffic counts in August and September 2008. PND Engineers, Inc. (PND) provided the preferred development alternative for Statter Harbor (Concept No. 4) on March 30, 2009. We used the information presented in the Concept No. 4 Site Plan as the basis for our analysis. DOT&PF provided a five-year collision history (2003 – 2007) on Glacier Highway in the vicinity of the proposed improvements.

Based on our analysis of traffic generated by the proposed Statter Harbor improvements, DOT&PF regulations (17 AAC 10.060) will not require a traffic impact analysis (TIA). The development is not expected to generate more than 100 vehicle trips on a highway during any hour of the day, nor is it expected to detract from the safety of the highway. However, DOT&PF may require a TIA to support a driveway permit application for the change of use and location proposed by PND under Concept No. 4. We understand that PND is not ready to submit this application. We confirmed that DOT&PF will not review a pre-application TIA. The purpose of this letter is to present information that may be used to support the pending driveway permit application.

### Trip Generation

DOT&PF regulations (17 AAC 10.070(a)) require the use of the Institute of Traffic Engineers' (ITE) *Trip Generation Handbook* (1997) to compute traffic generation by proposed developments. The ITE manual does not provide information for a land use similar to the proposed Statter Harbor improvements – launch ramps with associated parking. ITE Land Use 420 (marina) seems the closest to approximating the use of the new launch ramps at Statter Harbor. Marinas used in the ITE analysis included both public and private facilities. In addition to docks and berths for boats, some sites surveyed had social and club activities, limited retail, and restaurants. The manual provides trip generation rates using boat berths and upland area. The boat berth rate is not suitable for a launch

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ramp. The area-based trip generation rate appears to over-estimate trips, probably due to the limited facilities offered under Concept No. 4 and the parking and circulation space needed for vehicle/trailer combinations. (Land Use 420 does not mention boat launch operations.)

We decided to compute trip generation by estimating turnover at the launch ramps. Since boat launching appears to be the primary use under Concept No. 4, the physical capacity of the launch ramps would tend to limit the trips generated by the facility. Our counts from last fall show 14 vehicle/trailer trips on Harbor Drive during the peak hour and 23 trips during the busiest hour. During the busy hour, assuming the on-site parking is full, each operation on the launch ramp creates two trips on Harbor Drive. With two launch ramps active, each ramp would have accommodated 6 launch operations during the busy hour.

We assumed that congestion near the existing ramps decreases the efficiency of the launch operations. With the improved circulation and considerable increase in available parking, we assumed that each launch ramp under Concept No. 4 could handle twice as many operations as the existing Statter Harbor conditions allow. This would generate 48 trips in a peak hour. Assuming the availability of sufficient parking, and that most boating trips last more than an hour, a typical launch operation under Concept No. 4 would only generate one trip at the proposed driveway.

It is likely that vehicle/trailer combinations may arrive and not immediately launch a boat, but rather park and prepare to launch. Similarly, there may be a significant delay between pulling a boat and leaving the facility. To account for these conditions, trip generation should be higher than just launch ramp turnover. Concept No. 4 includes 92 vehicle parking spaces (without trailers). These vehicles may either accompany a vehicle/trailer, i.e., four persons in a boating party arriving in two or more vehicles, or be using other facilities located on the property. To be conservative, we estimate a trip generation rate of 70 trips in the peak hour.

#### Trip Distribution

Our counts from 2008 indicate that the Glacier Highway and Statter Harbor PM peak hours overlap, so our analysis of the build condition adds the Statter Harbor trips to the Glacier Highway peak traffic. We distributed these new trips based on existing traffic patterns. In our analysis of the Glacier Highway / Mendenhall Loop Road intersection, we did not account for an assumed reduction of traffic on Harbor Drive after the new facility opens.

#### Capacity Analysis

We analyzed capacity at the Glacier Highway and Back Loop Road intersection in its current configuration and with the proposed roundabout. The proposed improvements to Statter Harbor do not appreciably degrade level of service (LOS) from existing conditions. In its current configuration the intersection operates at LOS C with existing traffic levels. Factoring in the trips generated by the proposed improvements also results in LOS C. Average delay at the intersection increases from about 5 seconds to 6.5 seconds. Should DOT&PF construct a roundabout at this intersection, our analysis shows that the intersection would operate at LOS A with existing traffic and with the addition of trips generated by the proposed improvement.

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### Safety Analysis

We reviewed three safety-related issues: 1) collision data, 2) sight distance, and 3) the need for auxiliary lanes. Over the five-year period from 2003 through 2007, DOT&PF reports eight accidents on Glacier Highway between Harbor Drive and Auke Bay School. Six accidents involved two vehicles. All resulted in property damage and minor injuries. At a rate of less than two collisions a year, no obvious trends are apparent. The proposed improvements to Statter Harbor are not anticipated to increase the accident rate on this segment of Glacier Highway.

We evaluated sight distance for the proposed driveway using Figure 1190-1 in the DOT&PF Highway Preconstruction Manual and a posted speed limit of 35 miles per hour. The proposed driveway location provides adequate stopping sight distance in both directions along Glacier Highway.

We evaluated the need for auxiliary lanes on Glacier Highway for traffic turning left into the proposed driveway or turning right from the proposed driveway. Following the procedures of the National Cooperative Highway Research Program (NCHRP) Report 457, we determined that auxiliary lanes are not warranted at the proposed driveway.

### Summary

The proposed Statter Harbor improvements will not generate sufficient traffic to require a TIA to support a driveway permit application to DOT&PF. The traffic generated by the proposed improvements is not expected to detract from the safety of Glacier Highway. Based on our analysis, improvements to the highway to accommodate traffic generated by the proposed development are not necessary.

Sincerely,  
**USKH Inc.**



D. Lance Mearig, P.E.  
Principal

Work Order: 1052500

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